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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/292,862	04/16/1999	MICHAEL A. WALTER	07540/020003	4110

21559 7590 12/19/2003

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EXAMINER	
TURNER, SHARON L	

ART UNIT	PAPER NUMBER
1647	

DATE MAILED: 12/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/292,862	WALTER ET AL.	
	Examiner	Art Unit	
	Sharon L. Turner	1647	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 9-22-03

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *18-21,23-26,28-31 and 33* is/are pending in the application.

4a) Of the above claim(s) *23-26* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *18-21,28-31 and 33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *18-21,23-26,28-31 and 33* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Response to Amendment

1. The amendment filed 9-22-03 has been entered into the record and has been fully considered. As presented in the amendment of 9-22-03, claims 18-21, 23-26, 28-31 and 33 are pending. This differs from Applicants remarks on p. 5 of the amendment.

2. The text of Title 35 of the U.S. Code not reiterated herein can be found in the previous office action.

3. As a result of applicants amendment, all rejections not reiterated herein have been withdrawn by the examiner.

Election/Restriction

4. Applicants election of Group II, claims 18-22 and 27-32 to the extent of peptide therapy and glaucoma, without traverse in Paper No. 23 is acknowledged

5. Claims 23-26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made without traverse in Paper No. 23.

6. This application contains claims 23-26 drawn to an invention nonelected with traverse in Paper No. 23. A complete reply to the final rejection must include cancelation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

7. The specification defines the biological function of FREAC3, "biologically active FREAC3" at p. 9, lines 20-22. In particular it is noted that biologically active FREAC3 is sufficient when in an individual to prevent anterior segment dysgenesis or development/progression of FREAC3-dependent glaucoma. Such provides the

functional basis of activity of FREAC3. Combined with structure, as in claim 18 "95% identity to SEQ ID NO:2", such description is adequate written description of the invention to the skilled artisan.

New Rejections Necessitated by Amendment

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:
The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 18-21, 28-31 and 33 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 18-21 and 27-33 newly specify "in a human", "administering a composition comprising a biologically active FREAC3 polypeptide having 95% sequence identity to SEQ ID NO:2 and a pharmaceutically acceptable carrier" and the recitation of new claim 33 directed to specific glycine mutations occurring in affected individuals as well as controls. However, the amendment fails to provide support by page and line number in the specification as originally filed. Absent particular support, the recitations constitute new matter. In particular support is not found for treatment via the administration of the compounds and carriers as newly recited.

10. Claims 18-21, 28-31 and 33 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the sequences of SEQ ID NO:1 and 2 which describe a FREAC3 gene product, does not reasonably provide enablement for treatment of a developmental defect or a disease of the eye in a human via administration of biologically active FREAC3 polypeptides having 95% identity to SEQ ID NO:2. The specification discloses particular FREAC3 mutations that occur in patients with anterior segment dysgenesis and glaucoma, see in particular p. 43-45. However, the treatment of a developmental defect or a disease of the eye is not apparently provided via administration of any particular compound. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The specifications disclosure is insufficient to enable one skilled in the art to practice the invention as broadly claimed without undue experimentation. The factors relevant to this discussion include the quantity of experimentation necessary, the lack of working examples, the unpredictability of the art, the lack of sufficient guidance in the specification and the breadth of the claims. The specification at pp. 43-45 discuss apparent mutations found in IRID-1 families and individuals with anterior segment dysgenesis and glaucoma. In addition, p. 45, lines 5-10 discuss that, "Two alterations, GGC375ins and GGC447ins, each involving the insertion of an extra GGC triplet in two separate GGC repeats within the FREAC3 coding region (Fig. 2) were found in both patients and control individuals. These alterations are therefore presumed to be non-

IRIDI-associated polymorphisms of FREAC3." Such mutations are noted from families affected with anterior segment dysgenesis and glaucoma but are not noted as being capable of treating or preventing disease via administration as now is claimed. The presence of the gene does not apparently direct the individual from being free of developmental defects or diseases of the eye in humans as claimed.

Applicants claims are directed to increasing FREAC3 biological activity in a mammal. While the specification notes that FREAC3 activity is sufficient to prevent anterior segment dysgenesis or development/progression of FREAC3-dependent glaucoma in an otherwise healthy individual, such activity is not noted in individuals administered sequences related to SEQ ID NO:2 or in FREAC3 glycine mutated individuals as such occurs in both diseased and normal patients. Further there is no exemplification of treatment or prevention via administration of a wild-type FREAC3 polypeptide and pharmaceutical carrier similar to SEQ ID NO:2.

In addition, the claims are akin to a single means claim, i.e., where a means recitation does not appear in combination with another recited element of means and is subject to an undue breadth rejection under 35 USC 112, first paragraph because the specification at most would only disclose those means known to the inventor at the time of the invention, see in particular MPEP 2164.08(a). In the instant case the breadth of means may be via any molecule or method that achieved increased FREAC3 biological activity, see p. 9, lines 20-p. 10, line 11 that shares 95 % identity with SEQ ID NO:2. Yet the specification fails to delineate that administration of any corresponding molecule is sufficient to correct disease activity. Further, the specification fails to delineate any

particular treatment that provides for any beneficial effect in developmental disorders or diseases of the eye. While Mears et al., Autosomal dominant iridogoniodysgenesis anomaly maps to 6p25, Am J. of Hum. Genetics, 59(1):1321-1327, 1996, notes that FREAC3 is near the genetic region associated with IRID-1, no exemplification provides that the wild-type FREAC3 gene (SEQ ID NO:2) is sufficient to correct any eye abnormality via administration. Multiple genes may be located in the region. However, causative or corrective association can only be shown by exemplary teachings as to the genes activity and disease occurrence. In instant case, the FREAC3 gene product is not noted to provide treatment or prevention to affected patients and the mutations are not definitively correlated with the diseased state.

Thus, the scope of enablement is not commensurate in scope with the claims. In view of the quantity of experimentation necessary, the lack of working examples, the unpredictability of the art, the lack of sufficient guidance in the specification and the breadth of the claims, it would take undue experimentation to make and use the claimed invention.

Status of Claims

11. No claims are allowed.

12. The following prior art of record is noted, Mears et al., Autosomal dominant iridogoniodysgenesis anomaly maps to 6p25, Am J. of Hum. Genetics, 59(1):1321-1327, 1996.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire THREE MONTHS from the date of this action. In the event a first response is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than SIX MONTHS from the date of this final action.

14. Any inquiry of a general nature or relating to the status of this general application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Papers relating to this application may be submitted to Technology Center 1600, Group 1640 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). Should applicant wish to FAX a response, the current FAX number for Group 1600 is (703) 308-4242.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharon L. Turner, Ph.D. whose telephone number is (703) 308-0056. The examiner can normally be reached on Monday-Friday from 8:00 AM to 4:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Kunz can be reached at (703) 308-4623.

Sharon L. Turner, Ph.D.
December 15, 2003

GARY KUNZ
SUPERVISORY PATENT EXAMINER
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